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ABSTRACT

The Student Achievement Mode (SAM) gives teachers a system for collecting and analyzing data in order to increase student achievement in classrooms and schools. Developed in 1 school, the model is currently used in 63 elementary and 8 secondary schools in a large school district in Florida. The purpose of SAM is to increase student achievement, increase student ownership and responsibility in the learning process, and increase the effectiveness of teachers through their involvement in a continual process of inquiry. Student performance data, observational data, anecdotal notes, and survey data reveal that the model has improved teachers' involvement in problem-solving educational issues and has led to higher student achievement. (Contains 5 tables and 18 references.) (Author)

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Running head: SAM: A STUDENT ACHIEVEMENT MODEL

ED 430 015

SAM: A Student Achievement Model Designed to Empower Teachers and Increase Student Achievement Through Action Research

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Abstract

The Student Achievement Model (SAM) gives teachers a system for collecting and analyzing data in order to increase student achievement in classrooms and schools. Developed in one school, the model is currently used in 63 elementary and 8 secondary schools in a large school district in Florida. The purpose of SAM is to increase student achievement, increase student ownership and responsibility in the learning process, and increase the effectiveness of teachers through their involvement in a continual process of inquiry. Student performance data, observational data, anecdotal notes, and survey data reveal that the model has improved teachers' involvement in problem-solving educational issues and has led to higher student achievement.

SAM: A Student Achievement Model Designed to Empower Teachers and Increase Student Achievement Through Action Research

School reform, renewal or improvement is changing from the model of the expert coming in and telling teachers what research says and what they need to do in their classrooms to a process of involving teachers in a continual inquiry into how to make their teaching more effective (Huberman, 1992; Joyce and Calhoun, 1995). Schaefer (1967) says that the school must become the center of inquiry and that students need to be involved in what Hopkins (1997) calls powerful learning, where students have a greater control and understanding of their own learning. This project was designed to first investigate the impact of school-wide inquiry on student achievement in one school and second, to investigate a model for involving teachers, schools and students throughout a large school district in classroom and school inquiry. The project, which has involved a university professor, district supervisors, school administrators, and classroom teachers for the past six years began in one elementary school and during the 1998-99 academic year will involve students, teachers, parents, and administrators in 63 elementary schools and 8 secondary schools. The goal of the project was and continues to be to increase student achievement, increase student ownership and responsibility in the learning process, and increase the effectiveness of teachers through their involvement in a continual process of inquiry. For the purposes of this paper, we will share the development of the teacher inquiry or teacher research model, the

dissemination of this model in a very large school district, and the impact it has had on students and teachers.

Teacher research or inquiry is a frequently advocated process (e.g., Elliott, 1991; Patterson, Santa, Short, & Smith: Shannon, 1996; Stenhouse, 1985), but teacher researchers often face formidable challenges such as finding their research going unrewarded and at times estranged from peers (Cochran-Smith & Lytle, 1993). The dominant practices in schools such as standardized testing, required textbooks, and inflexible schedules often place teachers in the position of juggling the needs of students with the needs of the research, resulting in a lack of time for collecting and analyzing data, reflecting, sharing, writing and revising (Hollingsworth, 1996; Macrorie, 1987; Mohr & MacLean, 1987; Whittaker, 1988). Based on evidence that teacher inquiry is less overwhelming and confusing when conducted in long-term, close-knit communities (e.g., Elliott & Adelman, 1996; Goswami & Stillman, 1987; Mohr & MacLean, 1987), we set out to develop a model which gave teachers a system for collecting and analyzing data on a timely basis and allowed them ample time to study and interpret the data they collected. Our hope was that this would result in a "close-knit" community of teachers conducting action research.

Methods

We began this project by involving the teachers from School A in actively studying their students' performance data in reading and writing within classrooms and across grade levels. Calhoun (1991) describes schoolwide action research as a five-phased process where faculty members select an area or problem of collective

interest, collect, organize, and interpret on-site data related to their areas of interest, and then take action based on their interpretations. We basically used the same process or cycle using the terminology of Plan, Do, Study, and Act (PDSA) which is used in systems which embrace and implement the theories of Total Quality Management (TQM) (Byrnes, Cornesky & Byrnes, 1992).

We took the districts' informal assessments (e.g. running records, dictation survey, concepts of print, and deadline writing) which are administered three times per year and developed computer templates. Teachers type in their students' scores and are instantly given graphs showing the percentages of students below, on and above grade level as shown in Tables A 1 and A 3. When appropriate, the templates are designed to show teachers specific areas where students are having problems such as "focus" or "word choice" in writing as shown in Table A 2 or "author's purpose" in reading as shown in Table A 4. Teachers are then given opportunities to sit down in grade level teams to discuss trends in their data. Based on careful study and discussion, decisions were made at the classroom, grade-level and school level. Important in this project was the commitment of teachers and administrators to avoid using this process to evaluate individual teachers. We constantly reinforced the fact that we all were working together as a team to improve the learning of all students.

After two years, we had an established model for teacher inquiry which gave teachers a process by which they could align curriculum, instruction, and assessment. We called it the Student Achievement Model (SAM) as shown in Table A 3. Student performance data, observational data, and anecdotal notes indicated

that the model was effective and that teachers were extremely positive about their involvement in the process. We spent the following two years in a summer school project called the Student Achievement Institute (SAI) which paired teachers from other schools with mentoring teachers from School A. These teachers spent six weeks involved in implementing SAM with the hopes that they would go back to their home schools and continue the cycle of inquiry. The demand for training became so great by individual schools, that Achievement Teams were formed and schools that had a commitment from at least 66 percent of their faculty were supported in the process of adapting this model. Presently, 75 percent of a school's faculty must make a commitment to support the use of the model before it is implemented.

Results and Conclusions

Student performance data, observational data, anecdotal notes, and survey data were and continue to be collected to determine the impact of this ongoing project.

Randomly sampled reading achievement data collected from 350 primary and 200 intermediate students of 28 teachers involved in this project indicate a higher rate of achievement for students in classrooms where teachers were employing SAM when compared to the district as a whole. Measures for the primary grades included scores from a test of alphabet knowledge (91% mastery compared to 75%), Marie Clay's (1993) Dictation Survey (48% mastery compared to

22%), and running records (83% on or above grade level compared to 65%). The median CTBS scores for students in grades 3 through 5 was a 76 (75.5% at or above the 50th percentile) in SAM classrooms compared to a 66 (63.9% at or above the 50th percentile) across the district.

Fourth grade Florida Writes Scores from the School A, which has a challenging population of students, increased from an average of 2.2 in 1993 to 3.7 in 1998, which is higher than the district (3.4) and the state (3.0) averages. A school in the district with a similar population of students averaged a 2.8 out of a possible 6 on this same test.

In 1997, an attitude survey was administered to over 1000 teachers and administrators and revealed that 90 percent of those participating in this project were satisfied or very satisfied in terms of the computer templates, the support they received, and their experience working with peers to solve "teaching" problems using SAM. A levels of use survey was sent to all teachers using SAM during the 1997-1998 school year with 606 out of about 1000 returning them. Ninety-two percent of the teachers indicated that they used their assessment data to plan instruction, evaluate classroom instructional needs, and evaluate individual student's instructional needs. Eighty percent said that they also used these data to evaluate their own teaching. The results of the survey also revealed that as teachers became more experienced implementing SAM, they were more likely to engage in unscheduled discussions about their data with colleagues, share data with their students, and to share data with parents.

Perhaps the most interesting data are anecdotal and observational and reveal

profound changes in teachers' attitudes and actions. As teachers began to feel comfortable working with assessment data, they asked for changes to be made in the templates. For example, it was a general consensus among teachers in School A that a major reason for poor performance in their classrooms was due to the transient nature of their population of students. The templates were changed so that teachers could see students' performance across their entire class and then with new students removed. They found that new students were not necessarily the reason for poor performance, but they could more accurately assess the impact of their own teaching by studying the performance of students they had taught the entire year.

Teachers used the information they gleaned from their data in constructive and powerful ways due to the fact that they felt "safe" and confident that this information would not be used to evaluate their performance, but rather to help them enhance their teaching. For example, it is common to hear teachers complain each fall that students arrive in their classrooms not possessing the knowledge or skills they should. A group of teachers using SAM asked if they could find out how their students performed when they moved to the next grade. Templates were designed so that teachers could see how their children performed in the next year compared to the other teachers at their grade level. In the few cases where one teacher's students were performing considerably lower than her colleague's students, heads were put together to solve this problem. At School A two primary teachers with interns volunteered to go into the classroom of a teacher whose students were not performing well and whose students from the previous year were

also not fairing well in the next grade level. They went in each day and worked with individuals and small groups. They provided valuable modeling for this teacher and helped to accelerate the progress of her current students.

When allowed the time and flexibility to problem-solve, teachers have shown that they can come up with creative and effective solutions. For example, upon discovering that the students of newer teachers at School A who were placed in portable classrooms behind the school, were not performing as well when compared to students in other classrooms, veteran teachers volunteered to move to the portables and the newer teachers were moved into the main building and placed next to more experienced teachers who could act as mentors.

Teacher and schoolwide action research is empowering to teachers and can lead to improved student achievement. The Student Achievement Model (SAM), which is actually a process embedded in the larger district initiative of Total Quality Management (TQM) or Integrated Management Systems (IMS), has been a successful vehicle to begin this initiative. Teachers who have been involved with SAM over the past several years are interested in pursuing action research to solve other educational problems and to find instructional techniques which will ensure higher student achievement. They have learned the importance of collecting reliable and valid data to inform their teaching. These teachers also understand the importance of aligning their classroom goals with the district's and state's expectations for student achievement. Their research projects are designed to study instructional methods that will assist them in helping their students meet learning expectations effectively and efficiently. We are currently in the beginning stages of establishing a

network to support these teachers in their invidual and group inquiries. Presently 32 teachers are conducting research projects in their classrooms and will present their findings at the district's Quality Expo in April.

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Appendix

Table A1

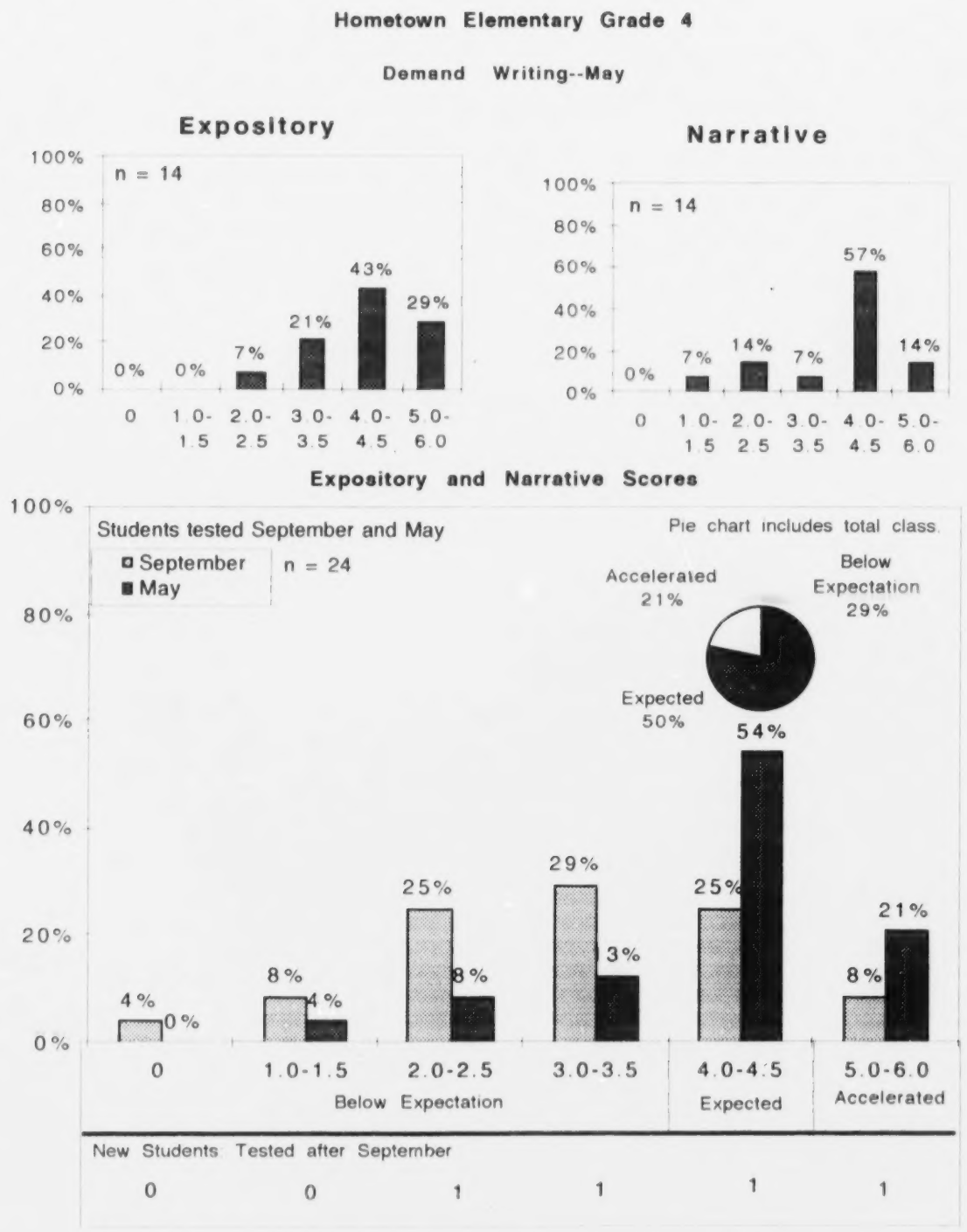

Hometown Elementary Grade 4
Demand Writing--May
Expository
n = 14
100%
80%
60%
40%
20%
0%
0%
0%
7%
21%
43%
29%
0
1.0-1.5
2.0-2.5
3.0-3.5
4.0-4.5
5.0-6.0
Narrative
n = 14
0%
7%
14%
7%
57%
14%
Expository and Narrative Scores
Students tested September and May
September
May
n = 24
Pie chart includes total class.
Accelerated 21%
Below Expectation 29%
Expected 50%
4%
0%
8%
4%
25%
8%
29%
3%
25%
54%
8%
21%
0
1.0-1.5
2.0-2.5
3.0-3.5
4.0-4.5
5.0-6.0
Below Expectation
Expected
Accelerated
New Students Tested after September
0
0
1
1
1
1

Table A 2

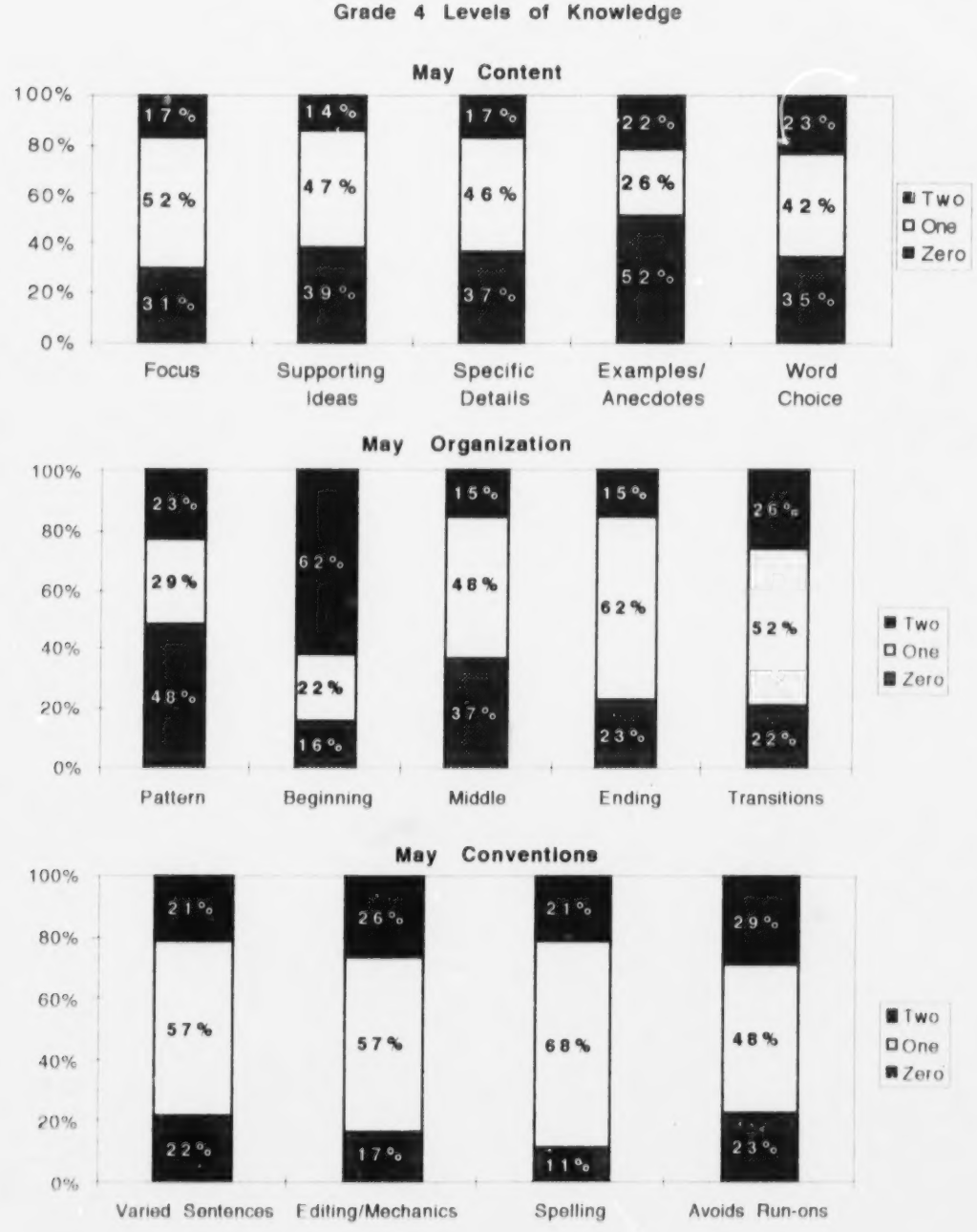

Grade 4 Levels of Knowledge
May Content
100%
80%
60%
40%
20%
0%
17%
52%
31%
14%
47%
39%
17%
46%
37%
22%
26%
52%
23%
42%
35%
Two
One
Zero
Focus
Supporting Ideas
Specific Details
Examples/ Anecdotes
Word Choice
May Organization
23%
29%
48%
62%
22%
16%
15%
48%
37%
15%
62%
23%
26%
52%
22%
Pattern
Beginning
Middle
Ending
Transitions
May Conventions
21%
57%
22%
26%
57%
17%
21%
68%
11%
29%
48%
23%
Varied Sentences
Editing/Mechanics
Spelling
Avoids Run-ons

Table A 3

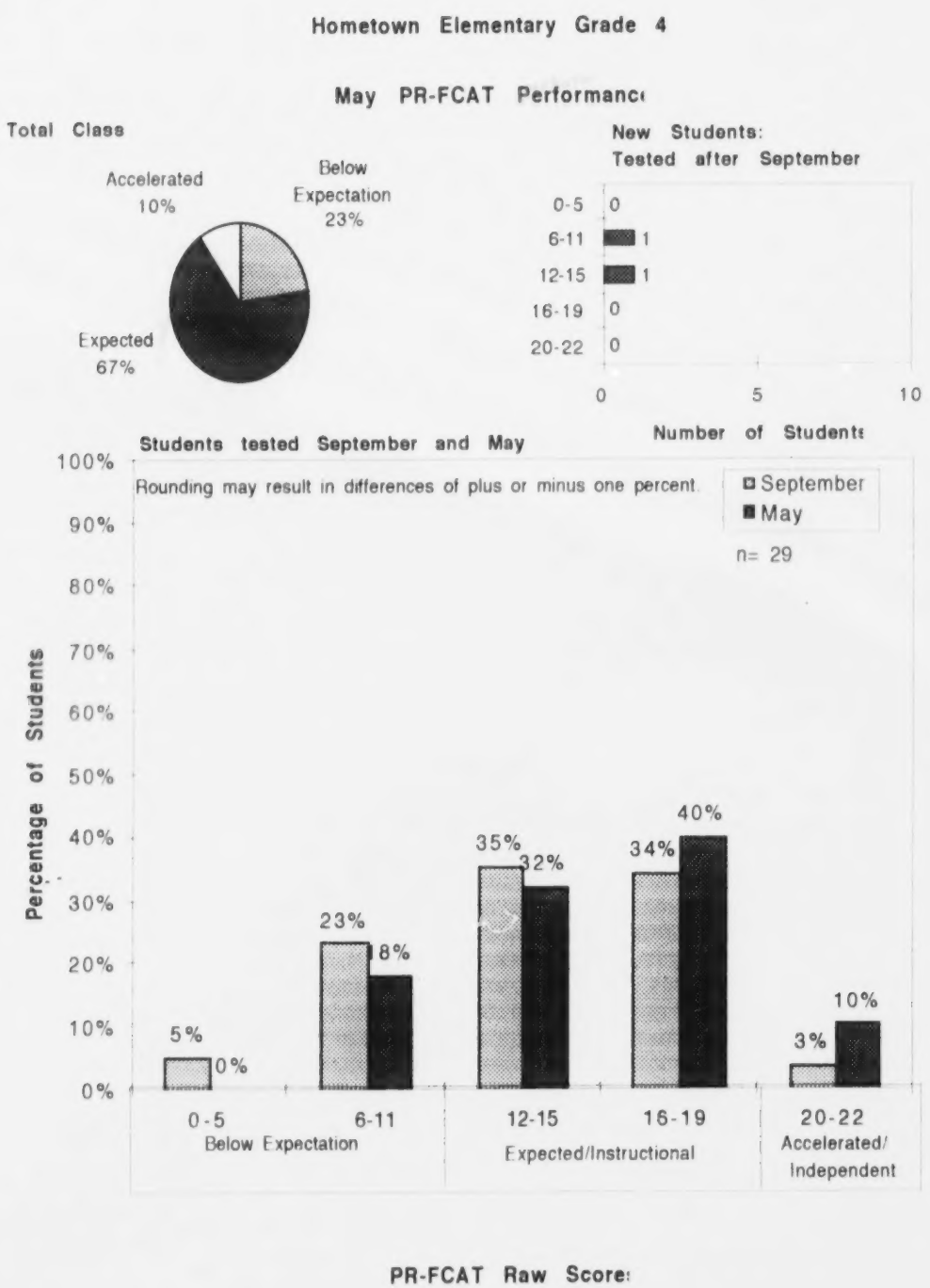
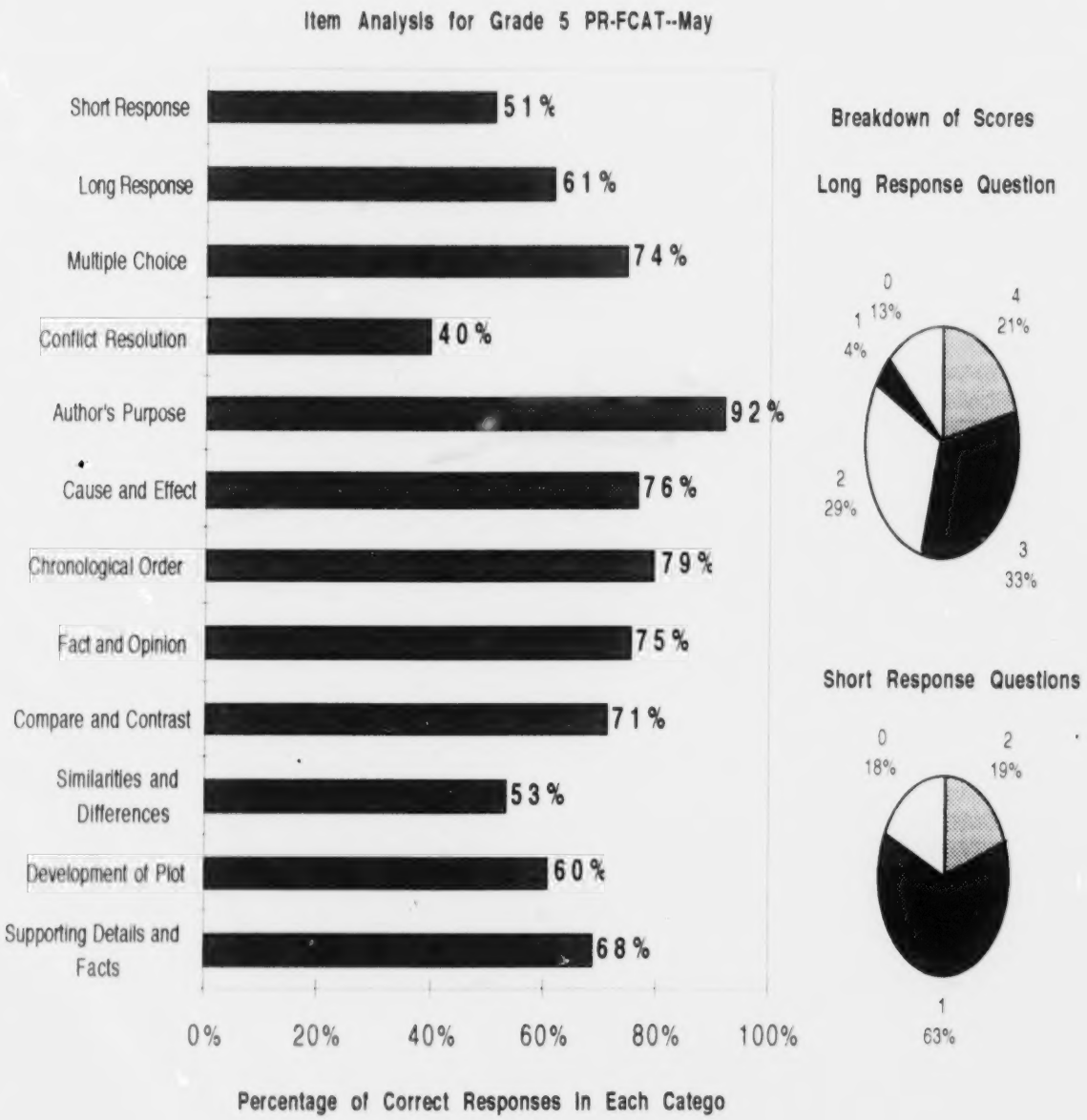

Hometown Elementary Grade 4
May PR-FCAT Performance
Total Class
Accelerated 10%
Below Expectation 23%
Expected 67%
New Students: Tested after September
0-5 0
6-11 1
12-15 1
16-19 0
20-22 0
0
5
10
Students tested September and May
Number of Students
Rounding may result in differences of plus or minus one percent.
September
May
n= 29
Percentage of Students
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
5%
0%
23%
8%
35%
32%
34%
40%
3%
10%
0-5
6-11
Below Expectation
12-15
16-19
Expected/Instructional
20-22
Accelerated/ Independent
PR-FCAT Raw Score

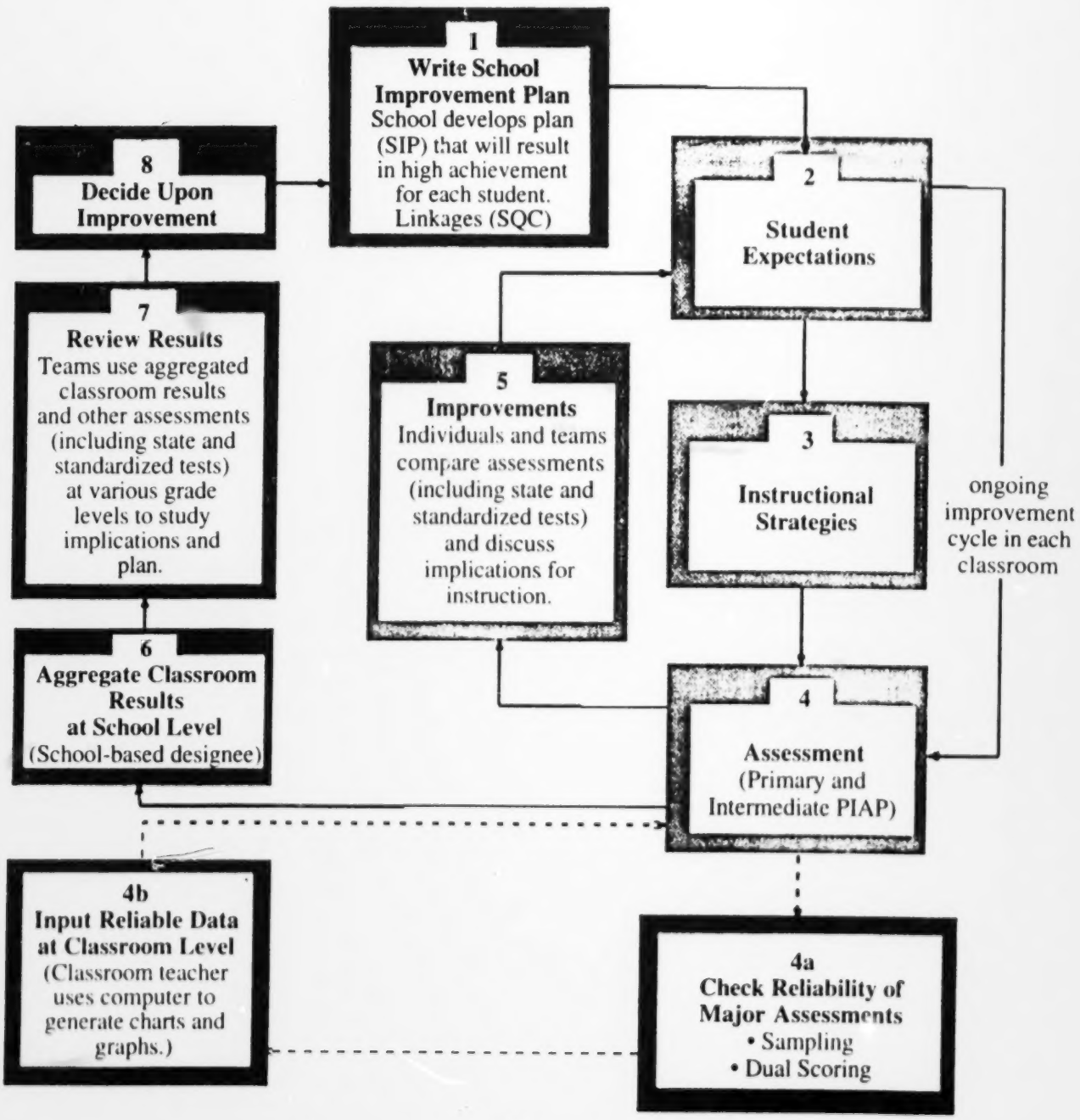
Table A 4


Item Analysis for Grade 5 PR-FCAT--May
Short Response
51%
Long Response
61%
Multiple Choice
74%
Conflict Resolution
40%
Author's Purpose
92%
Cause and Effect
76%
Chronological Order
79%
Fact and Opinion
75%
Compare and Contrast
71%
Similarities and Differences
53%
Development of Plot
60%
Supporting Details and Facts
68%
0%
20%
40%
60%
80%
100%
Percentage of Correct Responses In Each Catego
Breakdown of Scores
Long Response Question
0
13%
4
21%
1
4%
2
29%
3
33%
Short Response Questions
0
18%
2
19%
1
63%

Student Achievement Model

A process for increasing student achievement

Aligning Student Expectations, Instructional Strategies, and Assessment within an Integrated System of Process Improvement


1
Write School Improvement Plan
School develops plan (SIP) that will result in high achievement for each student. Linkages (SQC)
2
Student Expectations
3
Instructional Strategies
4
Assessment
(Primary and Intermediate PIAP)
4a
Check Reliability of Major Assessments
• Sampling
• Dual Scoring
4b
Input Reliable Data at Classroom Level
(Classroom teacher uses computer to generate charts and graphs.)
5
Improvements
Individuals and teams compare assessments (including state and standardized tests) and discuss implications for instruction.
6
Aggregate Classroom Results at School Level
(School-based designee)
7
Review Results
Teams use aggregated classroom results and other assessments (including state and standardized tests) at various grade levels to study implications and plan.
8
Decide Upon Improvement
ongoing improvement cycle in each classroom

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